- Number of visits in a recurrent state
- Staying forever in a transient state: $U_i = \sum_{j \in T} p_{ij} U_j$ $\quad i \in T$
  Gambler's ruin vs. a bank
- Absorption in a recurrent class $C$ : $V_i = \sum_{j \in C} p_{ij} + \sum_{j \in T} p_{ij} V_j$ $\quad i \in T$
  Gambler's ruin vs. a bank
- Mean absorption time in $C$ : $w_i = 1 + \sum_{j \in T} p_{ij} w_j$ $\quad i \in T$
  Coupons collector
  Gambler's ruin (finite state space)

- Transience criterium : $\exists$ bounded non-constant : $\sum_{k \in E} p_{jk} y_k = y_j$
- Recurrence criterium : $\exists (y_i)_i : \sum_{k \in E} p_{jk} y_k \leq y_j$ , $y \to \infty$
  Queue model

- Suff. cond. for $\exists! \pi$ : $\exists (x_j)_j, (y_j)_j : \sum_{k \in E} p_{jk} y_k \leq y_j - x_j$ , $x_j, y_j \to \infty$
  Queue model

- Moment generator function
  Gambler's ruin